

Appendix A

CURRICULUM VITAE
STANLEY J. WATSON
REVISED AS OF: Oct. 2, 2000

CURRICULUM VITAE
PERSONAL DATA

Name: Stanley J. Watson, Jr.

Social Security Number: 240-64-6614

EDUCATION

1958 - 1961	Benjamin Franklin High School, New Orleans, Louisiana
1961 - 1962	Tulane University, New Orleans, Louisiana
1962 - 1963	Louisiana State University, New Orleans, Louisiana
1963 - 1965	University of Southern Mississippi, Hattiesburg, Mississippi; B.S. (Psychology)
1965 - 1970	University of Iowa, Iowa City, Iowa; Ph.D. (Clinical Psychology)
1970 - 1974	Tulane Medical School, New Orleans, Louisiana; M.D.

POSTDOCTORAL TRAINING

1974	Pacific Presbyterian Medical Center, San Francisco, California; Internship
1974 - 1977	Stanford University School of Medicine, Department of Psychiatry and Behavioral Sciences, Stanford, California; Psychiatric Internship and Residency
1977 - 1978	Stanford Medical Center, Department of Psychiatry, Stanford, California; Research Resident

ACADEMIC APPOINTMENTS

1978 - 1981	Assistant Professor and Assistant Research Scientist, Department of Psychiatry and Mental Health Research Institute, University of Michigan
1981 - 1987	Associate Professor and Associate Research Scientist, Department of Psychiatry and Mental Health Research Institute, University of Michigan
1983 - 1987	Director of the Experimental Clinical Endocrine Lab, Department of Psychiatry and Mental Health Research Institute, University of Michigan
1984 - 1995	Associate Director, Mental Health Research Institute, University of Michigan
1987 -	Professor and Research Scientist, Department of Psychiatry and Mental Health Research Institute, University of Michigan
1993 -	Associate Chair for Research, Department of Psychiatry
1995 -	Co-Director (with H. Akil), Mental Health Research Institute, Univ. of Mich.

CONSULTING POSITIONS

1986 - 1994	Neurex, Menlo Park, California
1992 -	Neurocrine Biosciences, La Jolla, California
1993 -	MHCRC for the Study of Suicidal Behavior, University of Pittsburgh

SCIENTIFIC ACTIVITIES

Editorial Boards

1980 - 1983	Peptides
1984	Archives of General Psychiatry
1985 - 1988	Drug and Alcohol Dependence
1986 - 1990	Neuropsychopharmacology
1986 -	Psychoneuroendocrinology

1987 - Journal of Chemical Neuroanatomy
1987 - 1993 Neurobiology of Aging
1988 - Experimental Neurology
1988 - Journal of Neuroendocrinology
1988 - Peptide Research
1985 - 1989 Neuropeptides
1989 - 1991 Neuroendocrinology
1989 - 1994 Molecular and Cellular Neurosciences
— Regular Reviewer for several journals: Science, Endocrinology, Nature, Neuroendocrinology, PNAS, Brain Research, Regulatory Peptides, and American Journal of Psychiatry, Journal of Psychiatric Research
1993 - Critical Reviews in Neurobiology
1994 -1997 Neuropsychopharmacology
1995-96 Associate Editor, Journal of Chemical Neuroanatomy
1995- Molecular Psychiatry
1997 Guest editor with J. Meador-Woodruff, Journal of Psychiatric Research v. 31, no. 2.
1997- Molecular Neurobiology
Investigation, Board of Consulting Editors
Biopolar Disorders, An International Journal of Psychiatry and Neurosciences, Editor
1999- Current Psychiatry Reports
2000 The Journal of Clinical Investigation, Consulting Editor

Study Sections

Site Visitor and Substitute Reviewer: NIMH, NIDA, NINCDS, N.I.H. and N.S.F.

GRANT SUPPORT
ACTIVE

P01 MH42251-11 (Watson and Akil) 12/01/96 - 11/30/01

NIMH \$543,290 Annual Direct Costs

Molecular Elements, Neurocircuits and Mental Illness

The overall purpose of this Program Project is to continue to investigate the **neurobiology of stress and depression**, using a combination of anatomical, molecular biological, endocrine, and behavioral tools, in the context of four individual projects. The main focus is to understand the **limbic neuronal circuits** which participate in the evaluation of stressors, and transduce the activation and termination of stress responses.

Subproject 1 (Watson) 10%

The goal of this project is two-fold: 1) to increase our understanding of the **neuronal circuitry** critical to stress activation, stress termination, and the differential stress responsiveness across the circadian rhythm of the rat; and 2) to understand how this circuitry may be differentially activated as a function of the nature of the stressor (i.e., the ability of the animal to cope with it) and as a function of individual differences.

Subproject 2 (Akil) 5%

The focus of this proposal is to study how the limbic-hypothalamo-pituitary-adrenal (LHPA) axis changes as a function of early developmental events and exposure to repeated stress, and how these factors contribute to individual differences in stress responsiveness throughout life, including during the aging process.

Subproject 3 (Watson) 10%

Studying the neuroanatomical substrates of **stress, suicide and depression** in human brain is the central theme of this project.

Subproject 4 (Akil) 5%

These studies should shed light on the extent of the relationship between major depression and the dysregulation of stress responsiveness.

R01 DA02265 (Akil) 05/01/95 - 03/31/00 10%

NIDA \$202,264 Annual Direct Costs

Mu and Delta Receptors: Role in Transmission and Addiction

The purposes of this project are 1) to clone and compare multiple kappa receptors across species, including rat, mouse, guinea pig and man. 2) to characterize these receptors in terms of their signal transduction pathways. 3) to characterize these receptors in terms of their structure-function relationships. 4) to study the tissue-specific expression of these receptors. 5) to study the regulation of the newly cloned receptors.

R01 DA08920 (Akil) 05/01/98 - 04/30/99 10%

NIDA \$155,161 Annual Direct Costs

Molecular Studies of Kappa Opioid Receptors

The purpose of this project is to investigate, at the molecular and integrative levels, the biology of the newly cloned mu and delta opioid receptors, attempting to understand how these molecules function as units, and how they interact with other brain molecules to modulate critical functions such as pain and drug reward.

Stanley Foundation 8/01/96 – 8/31/00 0% No-Cost Time
Extension
Analysis of Monoamine Cell Groups in Major Psychiatric Syndromes

This research will answer key questions about the role of monoaminergic transmission in the major psychiatric conditions; schizophrenics, schizo-affectives, depressed patients, patients with bipolar affective disease. This represents the first integrated view of these monoamine transmitter systems in the same set of brain tissue.

The Pritzker Foundation 7/01/97 – 11/30/99 17%
\$245,000 Annual Direct Costs
The Nancy Friend Pritzker Network for Depression Research
PI: J.D. Barchas, Cornell University; Co-PI: Watson, Akil, Greden, Young, Burmeister, Lopez, Vazquez, Zubieta
These funds are to establish a collaborative set of interactions between Michigan, (eight investigators listed as PI's), Cornell (Jack Barchas, PI) and Stanford University (Schatzberg, Co-PI). Collaborative research across nodes focuses on the clinical aspects of depression. The above amount is assigned to the Michigan node.

Robert Wood Johnson Foundation (Watson) 7/1/98-6/30/02 0%
\$71,326 Annual Direct Costs
Opioid and Glucocorticoid Receptors in the Developing Human and Rat CNS
The purpose of this grant is to study the development of endogenous opioid receptors and corticosteroid receptors in the human and rat brain, and to determine the effects of in utero or postnatal exposure to opiates, steroids or stress on this development at the cellular and molecular level.

NIDDKD (Yamada) 12/1/95-11/30/00 0%
\$20,522 Annual Direct Costs
Gastrointestinal Hormone Core Center, Biochemistry Core
These funds are for Center Core functions in gastro-intestinal peptide biology

PENDING

NIH-NIDA (Akil) 5/1/99 - 4/30/04 10%
\$170,670 Annual Direct Costs
The Orphanin System: Role in Stress and Addiction
This proposal is focused on studying the newly discovered Orphanin/Nociceptin system (QFQ system), a new peptidergic system, evolutionarily related to the endogenous opioids but exhibiting distinct biochemical, anatomical and functional properties.

NIH (Watson) (Bunney-UCI) 7/1/99-6/30/04 5%
(Sub-Contract to University of California-Irvine) \$118,247 Annual Direct Costs
mRNA Regulation in Depression: Candidate & Array Studies

The purpose of this project is to study the genetic, molecular, and biochemical causes of mood disorders, using two major approaches to the study of alterations in gene expression; 1) The expression candidate approach, relying on classical tools such as *in situ* hybridization to characterize *known gene products* and 2) The expression array approach which will rely on the new microarray and DNA chip technologies to screen for known and unknown genes whose expression may be altered in depression.

CERTIFICATION AND LICENSURE

1973 - 1978 Licensed Clinical Psychologist, Louisiana
1974 - Licensed Medical Doctor, Louisiana
1975 - Licensed Medical Doctor, California
1978 - Licensed Medical Doctor, Michigan
1979 Board Certified in Psychiatry and Neurology

HONORS AND AWARDS

1960 National Merit Scholarship Finalist
1961 - 1969 Academic Honors Scholarship at Tulane University and University of Southern Mississippi
1964 Member Psi Chi (Psychology Honor Scholarship) Graduated with Honors
1965 - 1969 Academic Scholarship, Iowa Graduate School
1974 Merck Award, Tulane Medical School
1977 Bank of America—Giannini Fellowship in Biomedical Research
1980 McAlpin Grant Recipient, (for an on-going contribution to mental health research), named by Dr. Floyd Bloom, National Mental Health Association's 1980 McAlpin Award Winner
1984 Grass Foundation Lecturer, University of Pittsburgh
1984 Pfizer Visiting Professorship in Psychiatry, Sinai Medical Center, New York
1985 Visiting Professor, University of Hawaii
1985 Pfizer Travelling Fellow of the Clinical Research Institute of Montreal
1987 Honorary Member, Alpha Omega Alpha, University of Michigan Chapter
1988 University of Michigan Senior Research Scientist Lectureship Award
1993 Theophile Raphael Professor of Neurosciences in Psychiatry
1994 Pfizer Visiting Professorship in Psychiatry, Johns Hopkins University Med. Ctr.
1994 Co-recipient (with H. Akil) of the Robert J. and Clair Pasarow Foundation Award for Neuropsychiatric Research.
1996 Michigan Scientific Club
1999 Principal Servant, Michigan Scientific Club

MEMBERSHIPS AND OFFICES IN PROFESSIONAL SOCIETIES

Alpha Omega Alpha Honor Medical Society
American Association for the Advancement of Science
American College of Neuropsychopharmacology, Fellow
American Medical Association
American Psychiatric Association
Collegium Internationale Neuro-Psychopharmacologicum
Histochemical Society
International Narcotic Research Association
International Society for Neurochemistry
Michigan Psychiatric Association
NARSAD Scientific Council
New York Academy of Science
Sigma Xi
Society for Biological Psychiatry
Society for Neuroscience
Endocrine Society
Institute of Medicine of the National Academy of Sciences

1987 - 1988 Co-Chair, Program and Scientific Communications Committee, American College of Neuropsychopharmacology

1988 - 1989 Chair, Program and Scientific Communications Committee, American College of Neuropsychopharmacology
1991 - 1992 Chair, Program Committee, Society for Neuroscience
1993 President of the Annual Meeting of the Association for Research in Nervous and Mental Disease
1994 - 1998 Member, CINP Council
1994-97 Member, ACNP Committee on Relationships with Advocacy Groups
1994-1996 Member, ACNP Task Force on Continuing Education
1994-1996 Member, CINP Credentials Committee and Membership Committee
1995-1997 Chair, ACNP Nominating Committee
1995- Member, Society for Neuroscience Finance Committee
1995-1996 Member, Society of Biological Psychiatry's A.E. Bennett Award Committee
1996-1997 Member, ACNP Finance Committee
1996-1997 Member, ACNP Sub-Committee on Continuing Education
1997- Member, The Dana Alliance for Brain Initiatives
1997- Chair, Board of Scientific Counselors for NIMH
1997- Member, ACNP Council
1998- Member, ACNP Constitution and Rules Committee
1999 Member, Review Committee for NIDA Director (Alan Leshner for Harold Varmus)
2000-03 Member, Scientific Advisory Panel, American Psychiatric Institute for Research and Education

TEACHING

University of Michigan

1980 - Neuroscience for Psychiatrists, University of Michigan, Co-taught with H. Akil (taught annually)

EXTRAMURAL INVITED PRESENTATIONS

1. Melatonin and pineal extracts. Presented at the Asilomar Conference on Neuroregulators and Hypotheses of Psychiatric Disorders, Pacific Grove, California, January, 1976.
2. Similarities in neurotransmitter modulation of electrical and morphine analgesia. Presented at the International Symposium on Factors Affecting the Action of Narcotics at Institute Mario Negri, Milan, Italy, July, 1976.
3. Studies on the opiate peptides. Presented at the Gordon Research Conference on the Mode of Action of Opiates, Wolfeboro, New Hampshire, June, 1977.
4. Immunocytochemical and biochemical studies of the enkephalins, beta-endorphin, and related peptides. A paper presented at the Conference on the Endorphins, Brescia, Italy, August, 1977.
5. In a symposium entitled Histochemistry in Psychiatry at the Annual Meeting of the Society of Biological Psychiatry, Atlanta, Georgia, May, 1978.
6. Some anatomical and physiological studies of opiate peptides and related substances. Presented at the New Jersey Health Science Group Symposium on Natures Own Opiates: The Morphine Related Substances in Brain at Rutgers Medical School, July, 1978.
7. Immunocytochemical studies of the endogenous opiate peptides and related substances. Presented at the 11th Miles International Symposium: Mechanisms of Pain and Analgesic Compounds, Baltimore, Maryland, June, 1978.
8. Immunocytochemical studies of enkephalins, β-endorphin, β-LPH, and ACTH in rat brain. Presented at the Annual Meeting of the International Narcotic Research Conference, Noordwijkerhout, The Netherlands, July, 1978.

9. Immunohistochemical studies on the anatomical relationship between the opiate peptide system and catecholamine systems in rat brain. Presented at the Fourth International Catecholamine Symposium, Asilomar, California, September, 1978.
10. Opiate peptide anatomy: An overview. A paper presented at the Annual Meeting of the American Congress of Neuropharmacology, Maui, Hawaii, December, 1978.
11. Endorphins: Clinical issues. A paper presented at Psychiatric Factors in Drug Abuse at the University of Minnesota, March, 1979.
12. Problems in demonstrating two peptides in the same neuron. A paper presented at the Annual Meeting of the Histochemical Society, Keystone, Colorado, April, 1979.
13. Anatomical and biochemical studies of brain beta-endorphin and alpha-MSH. A paper presented at the X Congress of the International Society of Psychoneuroendocrinology, Park City, Utah, August, 1979.
14. Relationship between alpha-MSH and beta-endorphin in brain: Anatomical and biochemical studies. A paper presented at Regulation and Function of Neural Peptides, Brescia, Italy, August, 1979.
15. β -Endorphin and ACTH function: Pre- and post-synaptic phenomena. A paper presented at the Annual Meeting of the German Pharmacological Society, Munich, Germany, September, 1979.
16. Endorphin and enkephalin pathways in the brain. A paper presented at The Brain as an Endocrine Target Organ in Health and Disease, Bordeaux, France, October, 1979.
17. Anatomy of the opiate peptides systems. A symposium presentation at the Annual Meeting of the American Association for the Advancement of Science, San Francisco, January, 1980.
18. Anatomy of peptidergic systems. A symposium presented at the Conference on Neuropeptides, Copper Mountain, Colorado, January, 1980.
19. Opioid peptides and related substances. A paper presented at a workshop of the National Institute of Neurological, Communicative Diseases and Stroke, on Neurosecretion and Brain Peptides: Implications for Brain Function and Neurologic Disease, Sea Island, Georgia, March, 1980.
20. Endorphins and psychosis: An overview. A symposium presented at the Annual Meeting of the American Chemical Society, June, 1980.
21. Anatomical and biochemical studies of the opioid peptides and related substances in brain. Presented at the Fourth Brain-Endocrine Interaction Symposium, Rochester, New York, September, 1980.
22. Central nervous system immunocytochemistry of opiate peptides: Beta-endorphin, alpha-MSH, and dynorphin systems. A symposium presented at the Society of Neuroscience, November, 1980.
23. Anatomical and biochemical studies of dynorphin. Presented at the International Narcotic Research Conference, Kyoto, Japan, July, 1981.
24. Recent immunocytochemical studies of the opioid peptides: Relationship between dynorphin and enkephalin system. Presented at the International Narcotic Research Conference, Falmouth, Massachusetts, June, 1982.
25. Future clinical significance. Presented at the Symposium Opioids: Past, Present and Future, held in honor of the 80th birthday of Hans W. Kosterlitz. Cambridge, England, April, 1983.

26. *In situ* hybridization of beta-endorphin mRNA in brain and pituitary. Presented at the Fifth BMRC Research Forum, University of Michigan, March, 1983.
27. Pituitary peptides in depression. Presented at the Meeting of the American Psychiatric Association, New York, May, 1983.
28. β -Endorphin in depression. Presented at the International Narcotic Research Conference, Garmisch, West Germany, June, 1983.
29. The use of anatomical tools in the study of brain opioid peptides: Immunocytochemistry, receptor autoradiography, and *in situ* hybridization of specific mRNAs. Presented at the Annual Meeting of the American College of Neuropsychopharmacology, San Juan, Puerto Rico, December, 1983.
30. Specific mRNA qualitation and quantitation. Presented at the Michigan Chapter, Society for Neuroscience, Ann Arbor, Michigan, March, 1984.
31. Opiates. Presented at the Vasopressin Conference, Aspen, Colorado, 1984.
32. Multiple opioids from the same precursor: Which is the real product? Presented at the International Narcotic Research Conference, Cambridge, England, July, 1984.
33. Molecular biology for psychiatrists. Pfizer Visiting Professor of Psychiatry. Presented at the Mt. Sinai Medical Center, New York, November, 1984.
34. New approaches to the study of the anatomy and regulation of neuropeptides and related mRNA in CNS. Presented at the 6th Annual Meeting of the Association for Research in Nervous and Mental Disease, New York, November, 1984.
35. Neuropeptide regulation and processing in CNS: Implications for studies of CSF. Presented at the Twenty-third Annual Meeting of the American College of Neuropsychopharmacology, San Juan, Puerto Rico, December 1984.
36. The ACTH beta-endorphin system: Regulatory and clinical studies. Presented at the University of California-San Diego, Grand Rounds Lecturer, February, 1985.
37. The use of molecular biology in a neuronal anatomical context. Presented at the Clinical Research Institute of Montreal, Canada, February 25, 1985.
38. Hybridization histochemistry in brain. Invited Lecturer, Department of Biochemistry, University of Hawaii, March, 1985.
39. Regulatory biology of the POMC systems in pituitary and brain. Guest Lecture Program University of Iowa College of Medicine, Iowa City, Iowa, April, 1985.
40. HPA axis dysregulation in depression: Focus on pituitary functioning. Guest Lecture Program, University of Iowa College of Medicine, Iowa City, Iowa, April, 1985.
41. Strategies for using and expanding cDNA probes as neuroanatomical tools. Presented at the Association of Anatomy Chairman Symposium, Toronto, May 6, 1985.
42. The ACTH/beta-endorphin system: Basic and clinical studies. Presented at the Meeting of the Society of Biological Psychiatry, Dallas, Texas, May, 1985.
43. Neuropeptide biology: Basic and clinical lessons from the opioids. Presented at the American Psychiatric Association Annual Meeting, Dallas, Texas, May, 1985.
44. Studies on mRNA of the endorphins and related peptides: Logical considerations and physiological and anatomical studies. Symposium: Molecular biological approaches. Presented at the International Narcotics Research Conference, North Falmouth, Massachusetts, 1985.

45. Neuroanatomical methodology: Perspectives on *in situ* hybridization. Symposium presented at the Society for Neuroscience (Chairman), Dallas, Texas, October, 1985.
46. The hypothalamus pituitary adrenal axis: Clinical and regulatory studies. Invited Lecturer: Nancy W. Werblow Lectureship, Cornell University Medical College, November 13, 1985.
47. Anatomy and regulation of opioid peptides mRNAs. Symposium: Genes, Messages and Their Products: Strategies for Studying Regulations, at the Meeting of the American College of Neuropsychopharmacology, Maui, Hawaii, December, 1985.
48. *In situ* hybridization in neuropeptide systems. (Chair): Session on peptide gene expression: Anatomy and regulation. Presented at the Conference on In Situ Hybridization for Brain Peptides. Howard Hughes Conference Center, Coconut Grove, January, 1986.
49. *In situ* hybridization in nervous tissue: Logical and technical considerations. Presented at the Symposium on In Situ Hybridization Methods. Sponsored by Network I of the Mac Arthur Foundation and the Nancy Pritzker Laboratory of the Stanford Department of Psychiatry, Stanford, California, January, 1986.
50. Regulatory studies of the HPA axis: Basic and human perspectives. Pfizer Visiting Professor of Psychiatry. Presented at the New York University Medical Center, February, 1986.
51. Hypothalamo-pituitary-adrenal axis regulation: Basic and clinical studies. Grand Rounds Visiting Lecturer, New York Hospital-Cornell Medical Center, White Plains, New York, March, 1986.
52. Studies of Peptide mRNAs in neurons: The logic of *in situ* hybridization. Presented at the Neural and Behavioral Biology Seminar, University of Illinois at Urbana-Champaign, Illinois, April, 1986.
53. Opioid systems in nervous tissue: Anatomical approaches to biochemistry. Presented at the International Narcotics Research Conference, San Francisco, July, 1986.
54. Localization of enkephalin and endorphin messenger RNA's by *in situ* hybridization. Presented at the American Society for Pharmacology and Experimental Therapeutics, Baltimore, August, 1986.
55. Regulation of endorphins and related peptides in normal and abnormal states. Invited speaker, Brown University, Providence, November, 1986.
56. Biochemical anatomy of neuropeptide systems in brain. Invited speaker, University of Iowa, Iowa City, November, 1986.
57. Biochemical anatomy of the endogenous opioid system: Immunocytochemistry receptor audiography and *in situ* hybridization. Distinguished Scientist Seminar Series, Eastern Virginia Medical School, Norfolk, December, 1986.
58. Biochemical anatomy of peptidergic systems in brain. Presented at the Meeting of the American College of Neuropsychopharmacology, Washington, D.C., December, 1986.
59. Regulation of peptide mRNAs as a window into cellular activity: Northern and *in situ* analyses. Presented at the Gordon Research Conference on the Mode of Action of Opiates, Santa Barbara, California, February, 1987.
60. Invited participant at the Meeting on "Essential Topics of Future Research in Psychiatry." Max-Planck-Haus Heidelberg, Germany, February 27-28, 1987.
61. Neuropeptides. Science Strategy and Planning Neuroscience Symposium. Invited Lecturer, Squibb Corporation, Princeton, New Jersey, May, 1987.

62. *In situ* hybridization: Technical issues and future perspectives. Invited Guest Lecturer at the Cold Spring Harbor Course entitled, "Molecular Cloning of Neural Genes." Cold Spring Harbor Laboratory, New York, August, 1987.
63. Biochemical anatomy of the endogenous opioids and the hypothalamo-pituitary-adrenal axis: Regulatory studies of mRNA, receptors, and peptides. Distinguished Visiting Scientist of the Laboratory of Neuroendocrinology of the Brain Research Institute, UCLA, Los Angeles, September, 1987.
64. Biochemical anatomy of endogenous opioid systems. Invited Speaker, Upjohn Symposium on Kappa Opioid Receptor Agonists. Kalamazoo, Michigan, September 30 to October 2, 1987.
65. *In situ* hybridization studies of neuropeptide systems. Invited speaker, Symposium on Molecular Biology of Brain and Endocrine Peptidergic Systems. Co-Sponsored by the Canadian Biochemical Society and the International Foundation for Biochemical Endocrinology, Montreal, October 13-16, 1987.
66. Biochemical anatomy: Studies of neuropeptidergic systems. Invited Lecturer, Albert Einstein University, Bronx, New York, March 9-10, 1988.
67. Anatomical and biochemical studies on the regulation of neuropeptides in brain: The endorphins and related endocrine systems. Invited Lecturer, Princeton University, Princeton, New Jersey, March 10, 1988.
68. The neuropeptides: Their regulation and their pathways. Symposium sponsored by the Addiction Research Foundation of Palo Alto and the Stanford University School of Medicine entitled "Molecular and Cellular Aspects of the Drug Addiction, Stanford, California, April 13, 1988.
69. Biochemical anatomy of neuropeptide systems: Regulatory studies. Symposium presented at the Society for Neuroscience, Toronto, Canada, 1988.
70. Regulation of neuropeptide gene products. Presented at the Meeting of the American College of Neuropsychopharmacology, San Juan, Puerto Rico, December, 1988.
71. Regulation of neuropeptide systems by *in situ* hybridization of mRNA: Peptide, enzymes and receptors. Presented at the Miami Bio/Technology Winter Symposium, Miami, Florida, February, 1989.
72. Regulation of the brain stress axis: Basic and clinical. Invited Speaker, Columbia University, New York, March, 1989.
73. Regulation of brain peptide systems: Basic and clinical. Invited Speaker, Duke University, Durham, North Carolina, March, 1989.
74. The brain's stress system: Regulation and circuitry. Invited Speaker, Fishberg Center, Mt. Sinai Medical Center, New York, March, 1989.
75. Regulation of limbic components of the hypothalamo-pituitary-adrenal axis. Invited Symposium Speaker, American Psychiatric Association, San Francisco, May, 1989.
76. Analysis of mRNA regulation in CNS by *in situ* hybridization: Receptor, enzymes and peptides. Invited Speaker, Western Psychiatric Institute and Clinic, University of Pittsburgh, May, 1989.
77. Investigations into the brain's stress axis: Basic and clinical perspectives. Invited Speaker, Clinical Research Center for Affective Disorders, University of Pittsburgh, May, 1989.
78. Regulation of limbic components of the hypothalamo-pituitary-adrenal axis. Invited speaker, American Psychiatric Association Annual Meeting, San Francisco, May, 1989.

79. Regulations of Expression of Genes Related to Neurotransmission. Presented at the University of Chicago, Chicago, Illinois, October, 1989.
80. Localization of Neuropeptides. Presented at the Plenary Session, Satellite of the 19th Annual Meeting of the Society for Neuroscience, Tucson, Arizona, October, 1989.
81. mRNA Distribution and Regulation of Glucocorticoid and Mineralocorticoid Receptors in Brain. Presented at the American College of Neuropsychopharmacology, Maui, Hawaii, December 13, 1989.
82. Site-Specific Expression and Regulation of the Dopamine D₂ Receptor. Presented at the American College of Psychopharmacology, Maui, Hawaii, December 13, 1989.
83. *In situ* Hybridization: An Approach to Brain Regulation. Presented at ISU Life Sciences Symposium, Iowa State University, Ames, Iowa, March 9-10, 1990.
84. Receptors *In situ*. Presented at the Vollum Institute, The Oregon Health Sciences University, Portland, Oregon, May, 1990.
85. Research into the biology of mental illness: Problems and perspectives. Presented at the State Alliance for the Mentally Ill of Michigan, Southfield, Michigan, May, 1990.
86. Molecular and neuronal aspects of the brains stress axis - peptide and steroid receptor studies. Presented at XXI Congress of the International Society of Psychoneuroendocrinology, Buffalo, New York, Aug. 20-24, 1990.
87. Hypothalamo-Pituitary-Adrenal Axis: Neuropeptide and Steroid Regulation. Presented at the 17th Congress of Collegium Internationale Neuro-Psychopharmacologicum, Kyoto, Japan, September, 1990.
88. In Search of a Kappa Receptor Functional Anatomy. Presented at the Kappa Receptor 1990 Asilomar Meeting, Pacific Grove, California, September, 1990.
89. Gene Activation in Neuropeptide Systems: Early Genes and Transcriptional Analysis *in situ*, presented at the American College of Neuropsychopharmacology Meeting, San Juan, Puerto Rico, December 10-14, 1990.
90. Functional Anatomy of Opioids and Their Receptors. Presented at The First UCLA-NIDA Conference on Drug Abuse, A "Decade of the Brain" Symposium, January 10-12, 1991.
91. Monoamine Receptor Systems in Brain: Anatomical and Regulatory Genetic Studies. Invited Speaker, Yale University, New Haven, Connecticut, March, 1991.
92. Molecular Genetics and Anatomical Circuits in the Brain's Stress Axis. Invited Speaker, St. Louis University School of Medicine, St. Louis, Missouri, April, 1991.
93. D₁ and D₂ Receptors in Brain: Forms, Functions and Circuits. Invited Speaker, International Congress on Schizophrenia Research, Tucson, Arizona, April 21-25, 1991.
94. The Brain's Stress Axis: An Update. Invited Speaker, American Psychiatric Association Annual Meeting, New Orleans, Louisiana, May 11-16, 1991.
95. Multiple Dopamine Receptor Systems in Brain: Molecular, Anatomical, Regulatory and Circuit Studies. Invited speaker. Cornell University Medical College, White Plains, New York, October 2-3, 1991.
96. Dopamine Receptor Genetics and Circuits in CNS. Presented at European College of Neuropsychopharmacology, Monte Carlo, Monaco, October 6-9, 1991.
97. The Brain's Stress Axis: Basic and Postmortem Studies. Invited speaker. Third Annual Bristol Myers Squibb Symposium on Neuroscience Research, Yale University School of Medicine, New Haven, Connecticut, October 25-26, 1991.

98. The Brain's Stress Circuit: Anatomy and Regulation. Invited Speaker, Indiana University, Indianapolis, Indiana, November 20, 1991.
99. Stress and the Brain: Anatomical and Molecular Genetic Studies. Invited Speaker, Case Western Reserve University, Cleveland, Ohio, March, 1992.
100. Stress Modulating Systems in the Brain: Molecular and Anatomical Studies. Grass Traveling Lecturer, The University of Georgia, Athens, Georgia, April, 1992.
101. The Dopamine Receptor Super-Family and Its Implications for Psychiatry. Presented at the American Psychiatric Association Annual Meeting, Washington, DC, May, 1992.
102. The Brain's Stress Axis: Molecular, Biological and Neuron Circuit Analyses. Invited Speaker, University of Minnesota, Minneapolis, Minnesota, May, 1992.
103. Anatomical and regulatory studies of peptide processing enzymes in specific brain circuits. Presented at the XVIIth C.I.N.P. Congress, Nice, France, June 28-July 2, 1992.
104. Control of CRF cellular activity by circuits in the CNS: Anatomical and molecular genetic studies. Presented at the XXIII Congress of the International Society of Psychoneuroendocrinology, University of Wisconsin-Madison, August 14-21, 1992.
105. Dopamine receptor subfamily: A complex story of interest to psychiatry. Invited Speaker, University of Pittsburgh, Pittsburgh, PA, November 13, 1992.
106. The Brain's Response to Stress: Glucocorticoid and Serotonin Receptors and Circuits: Invited Speaker, University of Washington School of Medicine, Seattle, WA, January 13, 1993.
107. Anatomical and regulatory studies of dopamine and serotonin receptor systems: Invited Speaker, University of Vermont College of Medicine, Burlington, VT, April 9, 1993.
108. *In situ* hybridization of prohormone converting enzymes in brain: Invited Speaker, 50th Swammerdam Lecture - Netherlands Institute for Brain Research, Amsterdam, The Netherlands, September 10, 1993.
109. Cloning, expression, and localized expression of rat kappa opiate and other receptors: Invited Speaker, NIDA Technical Review Meeting on "Molecular Neurobiology and Pharmacology of Opiate Receptor Subtypes: A Tribute to William Martin", Washington, DC, November 6-7, 1993.
110. Stress systems in brain: Circuits and molecules. Invited Speaker, Emory University School of Medicine, Atlanta, Georgia, February 16, 1994.
111. The brain's stress axis: anatomical and molecular studies. Invited Speaker, University of Iowa School of Medicine, Iowa City, Iowa, March 14-15, 1994. The brain's stress axis: anatomical and molecular studies. Invited Speaker, Johns Hopkins University School of Medicine, Baltimore, MD, April 20-21, 1994.
112. What can we learn about depression from the studies of the stress axis? Invited Speaker, Pfizer Visiting Professorship Program in Psychiatry at Johns Hopkins University School of Medicine, Baltimore, MD, April 20-21, 1994.
113. The brain's stress circuits. Keynote Speaker for Department of Psychiatry Research Retreat, University of Pennsylvania, Philadelphia, PA, April 21, 1995. The brain's systems for responding to stress. Grand Rounds Speaker, Department of Psychiatry, New York University Medical Center, New York, NY, March 14, 1996.
114. Stress and depression: anatomical studies in brain. Grass Foundation Lecture Speaker, Department of Psychiatry, University of Texas Health Science Center, San Antonio, Texas, June 6, 1996.

115. How the brain handles stress: Anatomical and molecular analyses. Invited Speaker, Department of Neurobiology, Stanford University School of Medicine, Stanford, California, November 7, 1996. How the brain handles stress: Anatomical and molecular analyses. Invited Speaker, Neurobiological Technologies, Inc., Richmond, California, November 8, 1996.
116. The Brain's Stress Axis: Anatomical and Molecular Studies. Invited Speaker, Department of Psychiatry, Sinai Hospital, Detroit, Michigan, January 8, 1997.
117. The Brain's Stress Axis: Anatomical and Molecular Studies. Invited Speaker, Oregon Regional Primate Research Center, Oregon Health Sciences University, Portland, Oregon, February 13, 1997.
118. The Brian's Stress Axis: Fundamental Molecular and Anatomical Studies. Invited Speaker, Dean's Distinguished Lecture Series Speaker, University of Arkansas for Medical Sciences, Little Rock, Arkansas, March 20, 1997.
119. Stress, Depression, and Suicide: Is There a Connection? Invited Speaker, Department of Psychiatry, University of Arkansas for Medical Sciences, March 21, 1997.
120. How does the brain regulate the stress response: Anatomical and biochemical perspectives? Presented at the 6th World Congress of Biological Psychiatry, Nice, France, June 25, 1997.
121. Molecular and circuit targets for drug development in the brain's stress systems. Presented at the 6th World Congress of Biological Psychiatry, Nice, France, June 26, 1997.
122. Very basic molecular biology. Presented at the XXVIIIth ISPNE Congress, San Francisco, California, July 27, 1997.
123. Brain's stress system: Molecular and anatomical studies. 1997-98 Visiting Professorship Lecture, University of Pittsburgh, Pittsburgh, Pennsylvania, November 17, 1997.
124. Localization of opiate receptors and related molecules at the light microscopic level. Presented at the 29th International Narcotics Research Conference, Garmisch-Partenkirchen, Germany, July 20-25, 1998.
125. Serotonin gene effects and psychopathology. Co-Chair at the ACNP Annual Meeting, Las Croabas, Puerto Rico, December 12-19, 1998.
126. Neural circuits mediating stress and anxiety. Presented at the Anxiety Disorders Association of Americ Meeting, San Diego, California, March 24-28, 1999.
127. Biochemical and neuroendocrine markers in psychiatric disorders. Presented at the Biomarkers and surrogate endpoints: Advancing clinical research and applications meeting, Bethesda, Maryland, April 15-16, 1999.
128. Medical marijuana. Presented at the American College of Physicians/American Society of Internal Medicine meeting, New Orleans, Louisiana, April 25, 1999.
129. POMC: A molecule with nine lives. Keynote speaker at Cold Spring Harbor Laboratory Fifth Annual President's Council Meeting, New York, May 14-15, 1999.
130. POMC and AGRP: Relationships and complexities. Presented at the 1999 Neuroendocrine Workshop on Energy Balance, Food Intake and Obesity Meeting, San Diego, California, June 9-11, 1999.
131. Anataomical and molecular regulation of the brain's stress axis. Presented at Parke-Davis-Warner Lambert, Ann Arbor, Michigan, April 18, 2000.
132. Gene expression arrays: Their power and their limits. Presented at the Society of Biological Society meeting, Chicago, Illinois, May 11-13, 2000.

133. Stress biology in rodent and human brain. Presented at the University of Chicago Annual Neuroscience Day Meeting, Chicago, Illinois, May 12, 2000.
134. Depression and stress: Molecular and anatomical studies in brain. Distinguished Visiting Scientist Lecture Series, Neuropharmacology and Neuroscience Resarch Group, The Albany Medical College, Albany, New York, October 25, 2000.

COMMITTEE AND ADMINISTRATIVE SERVICE

International and National

- 1979 - 1982 Public Information Committee - Neuroscience Society
1984 Evaluation Panel Member, NIMH Neurosciences Research Branch
1985 - 1988 Executive Committee, International Narcotics Research Conference
1985 - 1996 Advisory Board - Scottish Rite Schizophrenia Program
1986 - 1989 Neuroscience Program Committee
1986 - 1989 Program and Scientific Communications Committee, American College of Neuropsychopharmacology (Co-Chair, 1987-88; Chair, 1988-89)
1988 - 1992 NIMH Extramural Science Advisory Board Member
1990 Co-Organizer UCLA Meeting on Molecular Neurobiology
1991 Pfizer Scholars Program for New Faculty Academic Advisory Board Member
1991 - 1992 Chair, Program Committee, Society for Neuroscience
1993 - 1994 Science Advisory Board of the University of Rochester MHCRC for the Study of Suicidal Behavior
1993 President, ARNMD
1994 - 1997 Member, Michigan Biotechnology Association
1994 - 1998- Member, CINP Council
1994 - 1996 Member, CINP Credentials and Membership Committee
1994-96 Member, ACNP Committee on Relationships with Advocacy Groups
1994 - 1996 Member, ACNP Task Force on Continuing Education
1995- Chair, ACNP Nominating Committee
1995 - 1996 Member, Society for Neuroscience Finance Committee
1996- Member, External Advisory Board for the Harvard Brain Tissue Resource Center
1996-97 Member, External Advisory Panel of the Drug Abuse Research Center for Dr. Sol Snyder (Johns Hopkins)
1996-97 Member, External Advisory Board for the Center for the Neuroscience of Mental Disorders, University of Pittsburgh
1997-99 Chair, NIMH Board of Scientific Counselors
1997 Member, NIMH Search for Scientific Director
1997 Member, External Advisory Board for the NIMH Program Project Grant for Dr. Ermino Costa (University of Chicago)
1997 Member, CINP International Scientific Program Committee
1997 Member, Academic Advisory Board, Pfizer Postdoctoral Fellowship Program
2000-02 Member, American Psychiatric Association Committee on Basic Science

Institute of Medicine

- 1995-96 Vice-Chair, Institute of Medicine Committee to Identify Strategies to Raise the Profile of Substance Abuse and Alcoholism Research
Co-Chair, Institute of Medicine Committee Medicine Study on the Clinical Value and Uses of Marijuana
1999-02 Member, Board on Neuroscience and Behavioral Health

University of Michigan

- 1982 - 1985 Residency Research Track Committee, Department of Psychiatry
1983 - Executive Committee, Mental Health Research Institute
1984 - 1987 Appointments and Promotions Committee, Department of Psychiatry

- 1985 Chairman, Search Committee, Biochemical Neurobiology Positions, Mental Health Research Institute
- 1985 - 1987 Member Search Committee for Chairman of Anatomy
- 1985 - 1990 Executive Committee, Gastrointestinal Peptide Hormone Center
- 1985 - 1989 Endocrinology and Metabolism NIH Training Grant Selection Committee
- 1988 - 1989 Chairman, Appointments and Promotions Committee, Department of Psychiatry
- 1988 - 1990 Member, Operating Committee of the Biomedical Research Division, Michigan Diabetes Research and Training Center
- 1988 - 1990 Member, Operating Subcommittee of the Clinical Research Center
- 1990 - 1992 Member, University of Michigan Endocrine and Motabolism Chair Search Committee
- 1990 - 1996 Member, Research Assay Support Laboratory (RASL) Committee
- 1991 - 1992 Chair, Internal Review Committee, Department of Psychiatry
- 1993 - 1994 Member, Director of Psychobiology Laboratory Search Committee, Ann Arbor VA Medical Center
- 1993 - Member, GI Pilot Project Review Committee
- 1993 - Chair, MHRI Recruitment Committee
- 1993 - 1995 Member, Search Committee for the Child & Adolescent Psychiatry Hospital Service Chief
- 1993-1994 Member, Cellular & Molecular Biology Student Seminar Committee
- 1994-1995 Member, Cellular & Molecular Biology Admissions Committee
- 1995- 1998 Member, Medical School Executive Committee
- 1997- 1998 Member, Medical School Advisory Council on Clinical Research
- Member, University of Michigan Alcohol Research Center Internal Advisory Committee (12/1/98-11/20/03)
- 1999 Acting Chair of Psychiatry – during 6 months of current Chair's sabbatical
- 1999 - Genomic/Microarray Technologies Task Force for the Michigan Life Sciences Research Corridor Initiative
- 2000- Member, OVPR Advisory Council (OAC)
- 2001 Member, Research Advisory Board for the Office of Research and Graduate Studies

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Stanley J. Watson

COMPLETED PUBLICATIONS IN SCIENTIFIC JOURNALS

1. Watson, S.J.: The relationship of MMPI profiles to patterns of self Q-sort. Unpublished Masters thesis. University of Iowa.
2. Watson, S.J.: Speech monitoring behavior of process and reactive schizophrenic individuals under filtered voice delayed auditory feedback. Unpublished Ph.D. dissertation. University of Iowa.
3. Watson, S.J.: Effect of delayed auditory feedback on process and reactive schizophrenic subjects. *J. Abnor. Psych.*, 83: 609-615, 1974.
4. Watson, S.J. and Barchas, J.D.: Histofluorescence in the unperfused CNS by cryostat and glyoxylic acid: A preliminary report. *Psychopharm. Commun.*, 1: 523-531, 1975.
5. Watson, S.J. and Ellison, J.P.: Cryostat technique for central nervous system histofluorescence. *Histochemistry*, 50: 119-127, 1976.
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8. Watson, S.J., Akil, H., and Barchas, J.D.: A possible role for the dorsal periventricular catecholamine bundle in stimulation-produced analgesia: A behavioral and histochemical study. *Brain Res.*, 130: 335-342, 1977.
9. Watson, S.J., Akil, H., Sullivan, S., and Barchas, J.D.: Immunocytochemical localization of methionine enkephalin: Preliminary observations. *Life Sci.*, 21: 733-738, 1977.
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13. Barchas, J.D., Akil, H., Elliott, G.R., Holman, R.B., and Watson, S.J.: Behavioral neurochemistry: Neuroregulators and behavioral states. *Science*, 200: 964-973, 1978.
14. Watson, S.J., Berger, P.A., Akil, H., Mills, M.J., and Barchas, J.D.: Effects of naloxone in schizophrenia: Reduction in hallucinations in a subpopulation of subjects. *Science*, 201: 73-76, 1978.

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16. Watson, S.J., Akil, H., Richard III, C.W., and Barchas, J.D.: Evidence for two separate opiate peptide neuronal systems. Nature, 275: 226-227, 1978.
17. Berger, P.A., Watson, S.J., Akil, H., and Barchas, J.D.: Investigating the therapeutic potential of the endogenous opiate peptides. McLean Hosp. J., 3 (3): 168-177, 1978.
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19. Akil, H., Watson, S.J., Barchas, J.D., and Li, C.H.: Beta-Endorphin immunoreactivity in rat and human blood: Radioimmunoassay, comparative levels and physiological alterations. Life Sci., 24: 1659-1666, 1979.
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22. Berger, P.A., Watson, S.J., Akil, H., and Barchas, J.D.: Prospects for the evaluation of endorphins as psychotropic agents. Psychopharm. Bull., 15: 33-35, 1979.
23. Watson, S.J. and Akil, H.: alpha-MSH in rat brain: Occurrence within and outside of beta-endorphin neurons. Brain Res., 182: 217-223, 1980.
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29. Watson, S.J., Akil, H., Ghazarossian, V.E., and Goldstein, A.: Dynorphin immunocytochemical localization in brain and peripheral nervous system: Preliminary studies. Proc. Natl. Acad. Sci. USA, 78 (2): 1260-1263, 1981.
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91. Sherman, T.G., Day, R., Civelli, O., Douglass, J., Herbert, E., Akil, H., and Watson, S.J.: Regulation of hypothalamic magnocellular neuropeptides and their mRNAs in the Brattleboro rat: Coordinate responses to further osmotic challenge. J. Neurosci., 8 (10): 3785-3796, 1988.
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91. Schäfer, M.K.-H., Herman, J.P., Young, E., Thompson, R., Douglass, J., Sherman, T.G., Akil, H., and Watson, S.J.: Gene expression of neuropeptides related to CRF after adrenalectomy. Presented at the Society for Neuroscience, New Orleans, November, 1987.
92. Patel, P.D., Sherman, T.G., and Watson, S.J.: Molecular cloning of monkey proopiomelanocortin (POMC) and phylogenetic comparison. Presented at the Society for Neuroscience, New Orleans, November, 1987.
93. Akil, H. and Watson, S.J.: Genomic and post-genomic mechanism of POMC and response to stress. Symposium presented at the Meeting of the American College of Neuropsychopharmacology, San Juan, Puerto Rico, December, 1987.

94. Burke, S., Hersh, L., Unnithan, S., Chipkin, R., Schafer, M.K.-H., Mansour, A., and Watson, S.J.: Localization and regulation of rat kidney enkephalinase: An *in situ* hybridization analysis. Presented at the Society for Neuroscience, Toronto, Canada, 1988.
95. Day, R., Schafer, M.K.-H., Douglass, J., Ortega, M.R., Watson, S.J., and Akil, H.: The localization of prodynorphin and proenkephalin mRNAs in the rat adrenal gland by *in situ* hybridization. Presented at the Society for Neuroscience, Toronto, Canada, 1988.
96. Herman, J.P., Patel, P.D., Schafer, M.K.-H., Burke, S., Akil, H., and Watson, S.J.: Localization and steroid regulation of hippocampal glucocorticoid and mineralocorticoid receptor mRNA: A semi-quantitative *in situ* hybridization analysis. Presented at the Society for Neuroscience, Toronto, Canada, 1988.
97. Kwak, S.P., Young, E.A., Przewlocki, R., Akil, H., and Watson, S.J.: Effect of chemical adrenalectomy on vasopressin, CRF, and POMC mRNA regulation in the hypothalamus and pituitary. Presented at the Society for Neuroscience, Toronto, Canada, 1988.
98. Lopez, J.F., Mansour, A., Akil, H., Burke, S., Palkovits, M., Arato, M., Schafer, M.K.-H., and Watson, S.J.: Localization of POMC mRNA, glucocorticoid receptor mRNA and CRF receptors in human pituitaries. Presented at the Society for Neuroscience, Toronto, Canada, 1988.
99. Patel, P.D., Sherman, T.G., Herman, J.P., and Watson, S.J.: Cloning and regulation of rat hippocampal steroid receptors. Presented at the Society for Neuroscience, Toronto, Canada, 1988.
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101. Sherman, T.G., Robinson, A.G., and Watson, S.J.: Down regulation of vasopressin and oxytocin mRNAs: Decay profile differences between hyponatremia and rehydration. Presented at the Society for Neuroscience, Toronto, Canada, 1988.
102. Young, E.A., Schafer, M.K.-H., Herman, J., Day, R., Watson, S.J., and Akil, H.: Effects of ECT on the HPA axis: Basic and clinical studies. Presented at the Society for Neuroscience, Toronto, Canada, 1988.
103. Lopez, J.F., Watson, S.J., Mansour, A., Burke, S., and Akil, H.: Localization of POMC mRNA, glucocorticoid receptor mRNA and CRH receptors in human anterior pituitaries using *in situ* hybridization and receptor autoradiography. Presented at the Meeting of the American College of Neuropsychopharmacology, San Juan, Puerto Rico, December, 1988.
104. Herman, J.P., Wiegand, S.J., Watson, S.J.: Hypothalamo-pituitary-adrenocortical function following deafferentation of the hypothalamic paraventricular nucleus. Presented at the 71st Annual Meeting of the Endocrine Society, Seattle, Washington, June, 1989.
105. Schafer, M.K-H., Day, R., and Wtson, S.J.: *In-situ* localization of prodynorphin mRNA in rat pituitary gland. Presented at the 71st Annual Meeting of the Endocrine Society, Seattle, Washington, June, 1989.
106. Mansour, A., Meador-Woodruff, J.H., Camp, D.M., Robinson, T.E., Bunzow, J., Van Tol, H., Civelli, O., Akil, H., and Watson, S.J.: The effects of nigrostriatal 6-hydroxydopamine lesions on dopamine (D₂ receptor mRNA) and opioid systems. Presented at the International Narcotics Research Conference, Ste. Adele, Quebec, Canada, July, 1989.

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109. Meador-Woodruff, J.H., Mansour, A., Bunzow, J.R., Von Tol, H.H.M., Civelli, O., and Watson, S.J.: Localization and Regulation of Brain D₂-Dopamine Receptor mRNA. Presented at the Society for Neuroscience, Phoenix, October, 1989.
110. Lopez, J.F., S.J. Watson, Arato, M., Palkovitz, M., Burke, S. and Akil, H.: Increased POMC Gene Expression of Anterior Pituitaries of Suicide Victims: An *in situ* Hybridization Study. Presented at the Society for Neuroscience, Phoenix, October, 1989.
111. Day, R., Schafer, M.K.-H., Watson, S.J., and Akil, H.: Prodynorphin mRNA Localization and Regulation in the Rat Pituitary. Presented at the Society for Neuroscience, Phoenix, October, 1989.
112. Herman, J.P., Young, E.A., Savina, A., and Watson, S.J.: Hippocampal-Hypothalamic Circuits Mediating Tonic Inhibition of the Hypothalamo-Pituitary-Adrenocortical (HPA) Axis. Presented at the Society for Neuroscience, Phoenix, October, 1989.
113. Sherman, T.G. and Watson, S.J.: Structural Linkage of Rat Vasopressin and Oxytocin Genes. Presented at the Society for Neuroscience, Phoenix, October, 1989.
114. Mansour, A., Meador-Woodruff, J.H., Camp, D.M., Robinson, T.E., Bunzow, J., Van Tol, H., Civelli, O., Akil, H. and Watson, S.J.: Effects of Nigrostriatal 6-Hydroxydopamine Lesions on Dopamine (D₂) Receptor mRNA and Receptor Binding. Presented at the Society for Neuroscience, Phoenix, AZ, October, 1989.
115. Patel, P.D., Sherman, T.G., Thompson, R.C., Kwak, S.P., Akil, H. and Watson, S.J.: Multiple mRNAs for the Type I Corticosteroid Receptor in Rat Hippocampus. Presented at the Society for Neuroscience, Phoenix, AZ, October, 1989.
116. Kwak, S.P., Young, E.A., Akil, H. and Watson, S.J.: Circadian Variation of Neuropeptide mRNA in the Paraventricular Nucleus and Pituitary. Presented at the Society for Neuroscience, Phoenix, AZ, October, 1989.
117. Schafer, M.K., Day, R., Akil, H. and Watson, S.J.: Proenkephalin Messenger RNA is Expressed in Rat Pituicytes. Presented at the Society for Neuroscience, Phoenix, AZ, October, 1989.
118. Akil, H. and Watson, S. J.: The Steroid Receptor Gene Family and The Regulation of Glucocorticoid Synthesis: An overview. Presented at the American College of Neuropsychopharmacology, Maui, Hawaii, December 13, 1989.
119. Meador-Woodruff, J.H., Mansour, A., Healy, D.J., Civelli, O. and Watson, S.J.: Localization of Dopamine D₂ Receptor mRNA in Primate Brain. Presented at the American College of Psychopharmacology, Maui, Hawaii, December 13, 1989.
120. Watson, S.J.: Molecular Biology of Neurotransmitters and Their Receptors (Co-organizer), UCLA Symposium, South Padre Island, Texas, April 17-23, 1990.
121. Herman, J.P., Watson, S.J., Spencer, R., and McEwen, B.S. Treatment with the Type I glucocorticoid antagonist RU28318 alters circadian patterns of CRH mRNA expression in the hypothalamic paraventricular nucleus. Presented at the 1990 Endocrine Society Meeting, Atlanta, Georgia, June, 1990.

122. Kwak, S.P. and Watson, S.J. Transient corticotropin-releasing mRNA increase in response to an acute corticosterone synthesis blockade by metryapone. Presented at the 1990 Endocrine Society Meeting, Atlanta, Georgia, June, 1990.
123. Schafer, M.K.-H., Herman, J.P., and Watson, S.J.: Rapid detection of POMC heteronuclear Rna in individual pituitary cells by *in situ* hybridization. Presented at INRC, Amsterdam, July, 1990.
124. Gioannini, T.L., Yao, Y.-H., Hiller, J.M., Simon, E.J., Strader, C.D., Taylor, L., Akil, H., Watson, S., Weiss, E.R., and Johnson, G.L.: Studies using antibodies generated against peptide sequences from opioid binding protein and antibodies against rhodopsin. Presented at INRC, Amsterdam, July, 1990.
125. Lahti, A.C., Haskett, R.F., Murphy-Weinberg, V., Young, E.A., Watson, S.J., and Akil, H.: HPA dysfunction and family subtypes of depression. Presented at the American Psychiatric Association, New Orleans, 1991.
126. Young, E.A., Kotun, J., Haskett, R.F., Grunhaus, L., Akil, H., and Watson, S.J.: β -lipotropin/ β -endorphin (β -LPH/ β -END) and cortisol non-suppression to dexamethasone in depression: Relationship to sampling time and dexamethasone levels. Presented at the Society of Biological Psychiatry Annual Meeting, 1991.
127. Patel, P.D., Kwak, S.P., Herman, J.P., Young, E.A., Akil, H. and Watson, S.J.: Functional heterogeneity of type I and type II corticosteroid receptor expression in rat hippocampus. International Symposium on Stress and Reproduction, Sheraton Hotel, Port Douglas, Queensland, Australia, July 25-27, 1991.
128. Kwak, S.P., Patel, P.D., Akil, H., and Watson, S.J.: Multiple mRNA species of the Type I Corticosteroid Receptor Exist in the Rat Hippocampus. Presented at the 1991 Society for Neuroscience Meeting, New Orleans, November 10-15, 1991.
129. Lopez, J.F., Vazquez, D.M., Akil, H. and Watson, S.J.: Effect of Swim Stress on the Hypothalamic-Pituitary-Adrenal Axis: A Time Course Study. Presented at the 1991 Society for Neuroscience Meeting, New Orleans, November 10-15, 1991.
130. Mansour, A., Meador-Woodruff, J., Burke, S., Bunzow, J., Akil, H., Van Tol, H., Civelli, O., and Watson, S.J.: Differential Distribution of D₂ and D₄ Dopamine Receptor mRNAs in the Rat Brain: An *in situ* Hybridization Study. Presented at the 1991 Society for Neuroscience Meeting, New Orleans, November 10-15, 1991.
131. Morano, M.I., Vazquez, D.M., Caamano, C.A., Kwak, S.P., Watson, S.J. and Akil, H.: Basal Hypothalamic-Pituitary-Adrenal Axis Function in the Aged Rat. Presented at the 1991 Society for Neuroscience Meeting, New Orleans, November 10-15, 1991.
132. Cullinan, W.E., Herman, J.P. and Watson, S.J.: Morphological Evidence for Hippocampal Interaction with the Hypothalamic Paraventricular Nucleus. Presented at the 1991 Society for Neuroscience Meeting, New Orleans, November 10-15, 1991.
133. Herman, J.P., McEwen, B.S., Chao, H.M., Coirini, H. and Watson, S.J.: Diurnal Rhythms of Glucocorticoid and Mineralocorticoid mRNA Expression in the Hippocampal Formation: Regional Specificity and Steroid Dependence. Presented at the 1991 Society for Neuroscience Meeting, New Orleans, November 10-15, 1991.
134. Day, R., Schafer, M.K.-H., Watson, S.J., Chretien, M., and Seidah, N.G.: Gene Expression of Prohormone Convertases in the CNS and Periphery. Presented at the 1991 Society for Neuroscience Meeting, New Orleans, November 10-15, 1991.

135. Chalmers, D.T., Caanano, C. and Watson, S.J.: Comparative Anatomical Distribution of 5HT_{1A} Receptor mRNA and 5HT_{1A} Binding in Rat Brain. Presented at the 1991 Society for Neuroscience Meeting, New Orleans, November 10-15, 1991.
136. Meador-Woodruff, J., Mansour, A., Work, C. Van Tol, H.H.M., Grandy, D., Civelli, O., and Watson, S.J.: Localization of D₄ and D₅ Dopamine Receptor mRNAs in the Human Brain. Presented at the 1991 Society for Neuroscience Meeting, New Orleans, November 10-15, 1991.
137. Schafer, M.K-H., Lin, Yu-Fung and Watson, S.J.: Characterization of the Proenkephalin Heteronuclear RNA in Individual Nuclei in the Rat Brain. Presented at the 1991 Society for Neuroscience Meeting, New Orleans, November 10-15, 1991.
138. Thompson, R.C. and Watson, S.J.: Polymerase Chain Reaction (PCR) Amplification of mRNA Isolated from AtT-20/D16 Cells Using Guanine Nucleotide Binding Protein-Linked Receptor Oligonucleotide Primers: Preliminary Isolation and Characterization. Presented at the 1991 Society for Neuroscience Meeting, New Orleans, November 10-15, 1991.
139. Meador-Woodruff, J.H., Mansour, A., Little, K., Work, C., Civelli, O. and Watson, S.J.: Effects of Cocaine on Dopamine Receptor Gene Expression in the Human Brain. Presented at the 1991 American College of Neuropsychopharmacology Meeting in San Juan, Puerto Rico, December, 1991.
140. Mansour, A., Meador-Woodruff, J., Burke, S., Bunzow, J., Akil, H., Van Tol, H.H.M., Civelli, O. and Watson, S.J.: Differential Distribution of D₂ and D₄ Dopamine Receptor mRNAs in the Rat Brain: An *in situ* Hybridization Study. Presented at the 1991 American College of Neuropsychopharmacology Meeting in San Juan, Puerto Rico, December, 1991.
141. Lopez, J.F., Chalmers, D.T., Vazquez, D.M., Akil, H. and Watson, S.J.: The Effect of Antidepressants on the Hypothalamic-Pituitary-Adrenal Axis and 5HT_{1A} Receptor System. Presented at the 1991 American College of Neuropsychopharmacology Meeting in San Juan, Puerto Rico, December, 1991.
142. Watson, S., Patel, P., Kwak, S., Cullinan, W., Herman, J. and Akil, H.: Control of CRH cellular activity by circuits in the CNS: anatomical and molecular genetic studies. Presented at the ISPNE Meeting, Madison, Wisconsin, August, 1992.
143. Chalmers, D.T., Kwak, S.P., Mansour, A., Akil, H., and Watson, S.J.: Effect of adrenalectomy on brain 5-HT_{1A} receptor mRNA expression. Presented at the 1992 Annual Meeting of the Society for Neuroscience, Anaheim, California, November, 1992.
144. Fox, C.A., Thompson, R.C., Bunzow, J., Civelli, O. and Watson, S.J.: The distribution of dopamine D₂ receptor heteronuclear RNA (hnRNA) by intronic *in situ* hybridization of the rat brain. Presented at the 1992 Annual Meeting of the Society for Neuroscience, Anaheim, California, November, 1992.
145. Kwak, S.P., Akil, H., and Watson, S.J.: Differential distribution of type I corticosteroid receptor mRNA variants in the rat hippocampus. Presented at the 1992 Annual Meeting of the Society for Neuroscience, Anaheim, California, November, 1992.
146. Camper, S.A., Meador-Woodruff, J.H. and Watson, S.J.: Expression of D₂ dopamine receptor mRNA in the pituitaries of genetic dwarf mice. Presented at the 1992 Endocrine Society Meeting.
147. Strong, T.V., Boehm, K., Watson, S.J. and Collins, F.S.: Characterization of CFTR expression in human tissues by *in situ* hybridization. Presented at the Sixth Annual North American CF Conference, Washington, DC, October, 1992.

148. Morano, M.I., Caamano, C.A., Dalman, F., Hoversten, M.T., Watson, S.J. and Akil, H.: Point mutations in the 90-kDa heat shock protein binding region of the rat glucocorticoid receptor affect the steroid binding characteristics of the receptor. Presented at the Endocrine Society Annual Meeting, Las Vegas, Nevada, May, 1993.
149. Caamano, C.A., Morano, M.I., Watson, S.J. and Akil, H.: The mammalian 90-kDa heat shock protein forms functional complexes *in vitro* with corticosteroid receptors expressed in bacteria. Presented at the Endocrine Society Annual Meeting, Las Vegas, Nevada, June, 1993.
150. Morano, M.I., Caamano, C.A., Dalman, F., Hoversten, M.T., Watson, S.J., Pratt, W. and Akil, H.: Point mutations in the 90-kDa heat shock protein binding region of the rat glucocorticoid receptor affect the steroid binding characteristics of the receptor. Presented at the Endocrine Society Annual Meeting, Las Vegas, Nevada, June, 1993.
151. Vazquez, D.M., Lopez, J.F., Morano, M.I., Watson, S.J. and Akil, H.: Short term adrenalectomy increases glucocorticoid and mineralocorticoid receptor mRNA in selective areas of the developing hippocampus. Presented at the Society for Pediatric Research, Washington, DC, May, 1993.
152. Lopez, J.F., Chalmers, D.T., Vazquez, D.M., Akil, H. and Watson, S.J. : Serotonin transporter gene expression is regulated by antidepressants. Presented at the University of Michigan Department of Psychiatry Silverman Conference, June, 1993.
153. Cullinan, W.E., Herman, J.P., Battaglia, D.F. and Watson, S.J.: Pattern of immediate early gene expression in rat brain following acute stress. Presented at the University of Michigan Department of Psychiatry Silverman Conference, June, 1993.
154. Vazquez, D.M., Morano, M.I., Lopez, J.F., Akil, H. and Watson, S.J.: Glucocorticoid and mineralocorticoid receptor mRNA in the hippocampal formation of the developing rat: effect of short term adrenalectomy. Presented at the University of Michigan Department of Psychiatry Silverman Conference, June, 1993.
155. Fox, C.A., Mansour, A., Thompson, R.C., and Watson, S.J.: The distribution of dopamine D2 receptor heteronuclear RNA (hnRNA) and the effects of haloperidol. Presented at the University of Michigan Department of Psychiatry Silverman Conference, June, 1993.
156. Chalmers, D.T., Kwak, S.P., Mansour, A., Akil, H. and Watson, S.J.: Effect of adrenalectomy on brain 5-HT1A receptor mRNA expression. Presented at the University of Michigan Department of Psychiatry Silverman Conference, June, 1993.
157. Caamano, C.A., Morano, M.I., Watson, S.J. and Akil, H.: *In vitro* assembly of bacterially expressed corticosteroid receptors with the mammalian 90-kDa heat shock protein. Presented at the University of Michigan Department of Psychiatry Silverman Conference, June, 1993.
158. Thompson, R.C., Mansour, A., Akil, H. and Watson, S.J.: Cloning and pharmacological characterization of a rat mu opioid receptor cDNA. Presented at the INRC Conference, Skövde, Sweden, July, 1993.
159. Mansour, A., Thompson, R.C., Akil, H. and Watson, S.J.: Delta opioid receptor mRNA distribution in brain: comparison to delta receptor binding and enkephalin mRNA. Presented at the INRC Conference, Skövde, Sweden, July, 1993.
160. Meng, F., Xie, G-X, Thompson, R.C., Mansour, A., Watson, S.J. and Akil, H.: Cloning and pharmacological characterization of a rat kappa opioid receptor. Presented at the INRC Conference, Skövde, Sweden, July, 1993.

161. Meng, F., Xie, Guo-xi, Thompson, R.C., Mansour, A., Goldstein, A., Watson, S.J. and Akil, H.: Cloning and pharmacological characterization of a rat kappa opioid receptor. Presented at the University of Michigan Department of Cellular and Molecular Biology Symposium, September 8, 1993.
162. Thompson, R.C., Mansour, A., Akil, H. and Watson, S.J.: Cloning and pharmacological characterization of a rat mu opioid receptor cDNA. Presented at the University of Michigan Department of Cellular and Molecular Biology Symposium, September 8, 1993.
163. Mansour, A., Thompson, R.C., Akil, H. and Watson, S.J.: Delta opioid receptor mRNA distribution in brain: comparison to delta receptor binding and enkephalin mRNA. Presented at the University of Michigan Department of Cellular and Molecular Biology Symposium, September 8, 1993.
164. Watson, S.J., Cullinan , W., Schafer, M., Day, R. and Seidah, N.: *In situ* hybridization of prohormone converting enzymes in brain. Presented at the 1st International Congress on Hormones, Brain and Neuropsychopharmacology, Rhodes, Greece, September 10-17, 1993.
165. Vazquez, D.M., Lopez, Juan F., Morano, M. I., Watson, S.J. and Akil, H.: Glucocorticoid and mineralocorticoid receptor mRNA are up-regulated by short term adrenalectomy in selective areas of the developing hippocampus. Presented at the 1st International Congress on Hormones, Brain and Neuropsychopharmacology, Rhodes, Greece, September 10-17, 1993.
166. Lopez, J.F., Chalmers, D.T., Vazquez, D.M., Akil, H. and Watson, S.J.: Corticosteroid regulation of serotonin 1A receptor mRNA and binding in the hippocampus. Presented at the 1st International Congress on Hormones, Brain and Neuropsychopharmacology, Rhodes, Greece, September 10-17, 1993.
167. Burke, S., Mansour, A., Caamano, C., Akil, H. and Watson, S.J.: Immunocytochemistry of G-protein coupled receptor antibodies. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 7-12, 1993.
168. Curran, E.J., Mansour, A., Meng, F., Thompson, R.C., Akil, H. and Watson, S.J.: Concurrent localization of opioid peptide, dopamine receptor, and kappa opioid receptor mRNAs within the rat striatum using double *in situ* hybridization. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 7-12, 1993.
169. Mansour, A., Meng, F., Thompson, R.C., Xie, G., Akil, H. and Watson, S.J.: Kappa receptor mRNA distribution in the rat brain: comparison to kappa receptor binding and dynorphin mRNA. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 7-12, 1993.
170. Meng, F., Xie, G.X., Thompson, R.C., Mansour, A., Watson, S.J. and Akil, H.: Cloning and pharmacological characterization of a rat kappa opioid receptor. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 7-12, 1993.
171. Thompson, R.C., Mansour, A., Akil, H. and Watson, S.J.: Localization of an mRNA homologous to delta and kappa opioid receptor mRNAs that parallels a mu opioid receptor distribution in the CNS. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 7-12, 1993.
172. Chalmers, D.T., Lopez, J.F., Vazquez, D., and Watson, S.J.: Effects of dexamethasone administration on hippocampal 5-HT1A receptor gene expression. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 7-12, 1993.

173. Fox, C.A., Mansour, A., Thompson, R.C. and Watson, S.J.: The effects of haloperidol treatment on dopamine D2 receptor hnRNA, mRNA, and proenkephalin mRNA in the rat striatum. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 7-12, 1993.
174. Liberzon, I., Chalmers, D.T., Mansour, A., Morano, M.I., Watson, S.J. and Young, E.A.: Glucocorticoid regulation of oxytocin binding in hippocampus. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 7-12, 1993.
175. Lopez, J.F., Chalmers, D.T., Vazquez, D.M., Akil, H. and Watson, S.J.: Chronic unpredictable stress down-regulates serotonin 1A receptor in the hippocampus. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 7-12, 1993.
176. Mansour, A., Meng, F., Thompson, R.C., Xie, G., Akil, H. and Watson, S.J.: Kappa receptor mRNA distribution in the rat brain: comparison to kappa receptor binding and dynorphin mRNA. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 7-12, 1993.
177. Meador-Woodruff, J.H., Wang, J., Damask, S.P. and Watson, S.J.: Distribution of dopamine receptor messenger RNA in the primate brain. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 7-12, 1993.
178. Vazquez, D.M., Kwak, S.P., Lopez, J.F., Watson, S.J. and Akil, H.: Localization of the mineralocorticoid receptor mRNA 5' splice variants in the developing hippocampus. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 7-12, 1993.
179. Gutstein, H.B., Cullinan, W.E., Thompson, R.C., Watson, S.J. and Akil, H.: Pattern of immediate early gene expression in rat brain following a nociceptive stimulus. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 7-12, 1993.
180. Herman, J.P., Patel, P.D. and Watson, S.J.: Rapid down-regulation of mineralocorticoid receptor heteronuclear (hn) RNA by acute stress. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 7-12, 1993.
181. Watson, S.J.: Stress systems in the brain: molecules, nuclei and circuits. Presented at the 1993 ACNP annual meeting, Honolulu, Hawaii, December 10-15, 1993.
182. Akil, H., Morano, M.I., Caamano, C., Vazquez, D. and Watson, S.J.: Structural and functional studies of GR and MR: Presented at the NYAS Brain Corticosteroid Receptors: Studies on the Mechanism, Function and Neurotoxicity of Corticosteroid Action Meeting, Arlington, Virginia, March 2-5, 1994.
183. Meador-Woodruff, J.H., Little, K.Y., Damask, S.P. and Watson, S.J.: Effect of cocaine on D3 and D4 receptor expression in the human striatum. Presented at the 1994 Society of Biological Psychiatry Meeting, Philadelphia, Pennsylvania, May 18-22, 1994.
184. Meador-Woodruff, J.H., Damask, S.P. and Watson, S.J.: Dopamine autoreceptors in the human midbrain. Presented at the 1994 Society of Biological Psychiatry Meeting, Philadelphia, Pennsylvania, May 18-22, 1994.
185. Meador-Woodruff, J.H., Damask, S.P., Little, K.Y. and Watson, S.J.: Dopamine receptor gene expression in the human medial temporal lobe. Presented at the 1994 Society of Biological Psychiatry Meeting, Philadelphia, Pennsylvania, May 18-22, 1994.
186. Young, E.A., Murphy-Weinberg, V., Lopez, J.F., Watson, S.J. and Akil, H.: Normal response to AM metyrapone administration in depressed patients. Presented at the 1994 Society of Biological Psychiatry Meeting, Philadelphia, Pennsylvania, May 18-22, 1994.

187. Lopez, J.F., Chalmers, D.T., and Watson, S.J.: Selective modulation of the serotonin 1A receptor by steroids and stress. Presented at the 1994 Society of Biological Psychiatry Meeting, Philadelphia, Pennsylvania, May 18-22, 1994.
188. Healy, D.J., Sima, A., Tapp, A., Watson, S.J. and Meador-Woodruff, J.H.: Characterization of a schizophrenic brain collection. Presented at the 1994 Society of Biological Psychiatry Meeting, Philadelphia, Pennsylvania, May 18-22, 1994.
189. Lopez, J.F., Chalmers, D.T. and Watson, S.J.: Serotonin transporter gene expression is regulated by antidepressants. Presented at the 1994 U-M Department of Psychiatry Silverman Conference, June 15, 1994.
190. Vazquez, D.M., Kwak, S.P., Lopez, J.F., Akil, H. and Watson, S.J.: Localization of the mineralocorticoid receptor mRNA 5' splice variants in the developing hippocampus. Presented at the 1994 U-M Department of Psychiatry Silverman Conference, June 15, 1994.
191. Fox, C.A., Mansour, A., Thompson, R.C., and Watson, S.J.: The effects of haloperidol treatment on dopamine D2 receptor hnRNA, mRNA, and proenkephalin mRNA in the rat striatum. Presented at the 1994 U-M Department of Psychiatry Silverman Conference, June 15, 1994.
192. Fickel, J., Xie, G., Meng, F., Thompson, R.C., Watson, S.J. and Akil, H.: Isolation of potential candidates for guinea pig opioid receptors. Presented at the 1994 U-M Department of Psychiatry Silverman Conference, June 15, 1994.
193. Devine, D., Watson, S. and Akil, H.: The relative distributions of mRNAs encoding for mu and delta opioid receptors and for glutamic acid decarboxylase (GAD) in the ventral mesencephalon. Presented at the 1994 U-M Department of Psychiatry Silverman Conference, June 15, 1994.
194. Watson, S.J., Cullinan, W., Schafer, M., Day, R. and Seidah, N.: *In situ* hybridization of prohormone converting enzymes in brain. Presented at the 1994 CINP Meeting, Washington, D.C., June 27-July 1, 1994.
195. Watson, S.J.: Stress systems in the brain: molecules, nuclei and circuits. Presented at the 1994 CINP Meeting, Washington, D.C., June 27-July 1, 1994.
196. Fox, C.A., Mansour, A., Ruzicka, B.B., Akil, H. and Watson, S.J.: The effects of haloperidol on μ , and κ opioid receptor mRNA expression in the striatum. Presented at the 1994 International Narcotics Research Conference, Falmouth, Massachusetts, July 12-16, 1994.
197. Mansour, A., Fox, C.A., Meng, F., Thompson, R.C., Akil, H. and Watson, S.J.: Mu, delta and kappa receptor mRNA expression in the CNS: An *in situ* hybridization study. Presented at the 1994 International Narcotics Research Conference, Falmouth, Massachusetts, July 12-16, 1994.
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199. Watson, S.J.: Dopamine autoreceptors in the human midbrain. Invited talk at the Marcus Wallenberg Symposium, Göteborg, Sweden, September 14-17, 1994.
200. Watson, S.J. Stress systems in the brain: molecules, nuclei and circuits. Presented at the VIIth Annual Congress of the ECNP, Jerusalem, Israel, October 16-21, 1994.

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212. Meador-Woodruff, J.H., Damask, S.P., Wang, J. and Watson, S.J.: D3 and D4 dopamine receptor expression in the human cortex and striatum. Presented at the Society of Biological Psychiatry annual meeting, Philadelphia, PA, May, 1995.
213. Zimmer, C.A., Lopez, J.F., Campeau, S. and Watson, S.J.: Effect of chronic stress and antidepressants in rat hippocampal function. Presented at the Society of Biological Psychiatry annual meeting, Philadelphia, PA, May, 1995.
214. Morano, M.I., Caamaño, C.A., Watson, S.J., and Akil, H.: Glucocorticoid and mineralocorticoid receptor protein levels in the aged hippocampus of the rat. Presented at the Endocrine Society Annual Meeting, Washington, DC, May, 1995.
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226. Herman, J.P., Spencer, R., Morrison, D.G., Rucker, D. and Watson, S.J.: Steroid regulation of hippocampal glucocorticoid receptor and mineralocorticoid receptor gene expression *in vivo*. Presented at the Society for Neuroscience Annual Meeting, San Diego, California, November, 1995.
227. Cullinan, W.E. and Watson, S.J.: Hippocampal interaction with intrahypothalamic neurons that project to the paraventricular nucleus. Presented at the Society for Neuroscience Annual Meeting, San Diego, California, November, 1995.
228. Helmreich, D.L., Morano, M.I. and Watson, S.J.: An integrative examination of stress effects on the hypothalamic-pituitary-adrenal axis. Presented at the Society for Neuroscience Annual Meeting, San Diego, California, November, 1995.

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230. Campeau, S. and Watson, S.J.: *c-fos* mRNA induction in the auditory and limbic systems following loud noise stress. Presented at the Society for Neuroscience Annual Meeting, San Diego, California, November, 1995.
231. McLaughlin, D.P., Lopez, J.F., Little, K.Y., Pavlic, R. and Watson, S.J.: Quantitative three-dimensional mapping of human brainstem serotonergic systems. Presented at the Society for Neuroscience Annual Meeting, San Diego, California, November, 1995.
232. Caamaño, C.A., Morano, M.I., Watson, S.J. and Akil, H.: The nuclear role of the interaction of the glucocorticoid receptor with HSP90. Presented at the Society for Neuroscience Annual Meeting, San Diego, California, November, 1995.
233. Morano, M.I., Caamaño, C.A., Vázquez, D.M., Watson, S.J. and Akil, H.: Protein levels of the glucocorticoid receptor, mineralocorticoid receptor and heat shock protein-90 in the rat hippocampus: Effect of adrenalectomy. Presented at the Society for Neuroscience Annual Meeting, San Diego, California, November, 1995.
234. Kollack-Walker, S., Akil, H., Watson, S.J.: *c-fos* expression following agonistic behavior in the male Syrian hamster brain. Presented at the Society for Neuroscience Annual Meeting, San Diego, California, November, 1995.
235. Lopez, J.F., Zimmer, C.A., Campeau, S. and Watson, S.J.: Effect of chronic unpredictable stress and antidepressant treatment on spatial orientation learning. Presented at the American College of Neuropsychopharmacology Annual Meeting, San Juan, Puerto Rico, December, 1995.
236. Mansour, A., Reinscheid, R., Burke, S., Akil, H. and Watson, S.: Localization of the orphan opiate receptor (orphanin FQ) binding sites in the rat brain: Psychiatric implications. Presented at the American College of Neuropsychopharmacology Annual Meeting, San Juan, Puerto Rico, December, 1995.
237. Meador-Woodruff, J.H., Damask, S.P., Ritter, L.M., Healy, D.J., and Watson, S.J.: Dopamine D4 receptor mRNA in human brain: normal neuroanatomical distribution and alteration of expression in psychiatric disorders. Presented at the American College of Neuropsychopharmacology Annual Meeting, San Juan, Puerto Rico, December, 1995.
238. Watson, S.J., Chalmers, D., Vale, W. and DeSouza, E.: CRF receptors and CRF binding protein in brain: localization and function. Presented at the American College of Neuropsychopharmacology Annual Meeting, San Juan, Puerto Rico, December, 1995.
239. Watson, S.J.: Neural circuits and mental illness: attempts at weaving the web. Presented at the Keystone Symposia on Molecular and Cellular Biology, Lake Tahoe, California, February 8-14, 1996.
240. Healy, D.J., Haroutunian, V., Davidson, M., Powchik, P., Davis, K., Watson, S.J., Meador-Woodruff, J.H.: AMPA subunit gene expression in the frontal cortices of schizophrenics. Presented at the Society of Biological Psychiatry Annual Meeting, New York City, May 1-4, 1996.
241. Meador-Woodruff, J.H., Damask, S.P., Haroutunian, V., Davidson, M., Powchik, P., Davis, K.L. and Watson, S.J.: Differential patterns of dopamine receptor gene expression in schizophrenia. Presented at the Society of Biological Psychiatry Annual Meeting, New York City, May 1-4, 1996.

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243. Meador-Woodruff, J.H., Damask, S.P., Haroutunian, V., Davidson, M., Powchik, P., Davis, K.L. and Watson, S.J.: Dopamine receptor transcript expression in schizophrenia. Presented at the XX C.I.N.P. Congress, Melbourne, Australia, June 23-27, 1996.
244. Bagnol, D., Takahashi, T., Mansour, A., Reinscheid, R., Civelli, O., Owyang, O., Akil, H. and Watson, S.J.: Orphanin FQ expression in rat and guinea pig gastrointestinal tract. Presented at the International Narcotics Research Conference, Long Beach, California, July 21-26, 1996.
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246. Mansour, A., Burke, S., Reinscheid, R., Nothacker, H.P., Pavlic, R.J., Akil, H., Civelli, O. and Watson, S.J.: Orphanin FQ peptide: An immunohistochemical and in situ hybridization study. Presented at the International Narcotics Research Conference, Long Beach, California, July 21-26, 1996.
247. Watson, S.J., Mansour, A., Meng, F., Devine, D., Civelli, O. and Akil, H.: Orphanin FQ peptide and receptor: structure-function, anatomical and behavioral analysis. Presented at the International Narcotics Research Conference, Long Beach, California, July 21-26, 1996.
248. Civelli, O., Nothacker, H.P., Knoflach, F., Mansour, A., Ardati, A., Henningsen, R., Bourson, A., Monsma, F., Watson, S.J., Kemp, J. and Reinscheid, R.: The orphan, its ligand and its physiology. Presented at the International Narcotics Research Conference, Long Beach, California, July 21-26, 1996.
249. Watson, S.J.: Neuropeptide stress systems in brain: Molecular and circuit analysis. Presented at the X World Congress of Psychiatry, Madrid, Spain, August 23-28, 1996.
250. Bagnol, D., Mansour, A., Takahashi, T., Reinscheid, R., Civelli, O., Owyang, O., Akil, H. and Watson, S.J.: Distribution of orphanin FQ peptide in rat and guinea-pig gastrointestinal tract: comparison with met-enkephalin and dynorphin 1-17 peptides. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 16-21, 1996.
251. Deutch, A.Y., Watson, S.J., and Mansour, A.: Analysis of D1 and D2 dopamine receptor mRNA distributions and relative levels in the prefrontal cortex. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 16-21, 1996.
252. Kollack-Walker, S., Akil, H., and Watson, S.J.: Differential expression of c-fos mRNA in the male syrian hamster brain following social defeat or restraint. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 16-21, 1996.
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- hybridization study. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 16-21, 1996.
255. Neal, C.R. and Watson, S.J.: Expression of opioid receptor protein immunoreactivity in the developing human forebrain. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 16-21, 1996.
256. Day, H.E.W., Curran, E.J., Watson, S.J. and Akil, H.: Co-expression of enkephalin and GABA in neurons responsive to interleukin-1 β in the rat central nucleus of the amygdala. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 16-21, 1996.
257. Campeau, S., Akil, H. and Watson, S.J.: Lesions of the auditory thalamus specifically block corticosterone release and induction of c-fos mRNA in the forebrain associated with loud noise stress in rats. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 16-21, 1996.
258. Campeau, S., Akil, H. and Watson, S.J.: Lesions of the lateral nucleus of the amygdala but not of the auditory cortex specifically attenuate corticosterone release to loud noise stress in rats. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 16-21, 1996.
259. Meador-Woodruff, J.H., Haroutunian, V., Powchik, P., Davidson, M., Davis, K.L., and Watson, S.J.: Abnormal cortical dopamine receptor mRNA expression in schizophrenia. Presented at the Society for Neuroscience Annual Meeting, Washington, DC, November 16-21, 1996.
260. Devine, D.P., Watson, S.J., Civelli, O. and Akil, H.: Orphanin FQ increases plasma corticosterone responses to stress. Presented at the International Narcotics Research Conference, Hong Kong, 1997.
261. Devine, D.P., Watson, S.J., Civelli, O. and Akil, H.: Intracerebroventricular administration of the neuropeptide orphanin FQ alters responses of the HPA axis to stress. Presented at the Society for Neuroscience Annual Meeting, New Orleans, LA, October 24-30, 1997.
262. Yazdani, A., Takahashi, T., Bagnol, D., Akil, H., Watson, S.J., Owyang, C.: A newly discovered neuropeptide, orphanin FQ: Its distribution and action in rat gastrointestinal tract. Presented at the American Gastroenterological Association and American Association for the Study of Liver Diseases, May 11-14, 1997.
263. Day, H.E.W., Watson, S.J. and Akil, H.: Expression of adrenergic receptor subtypes in the rat paraventricular nucleus of the hypothalamus: A dual *in situ* hybridization study. Presented at the Society for Neuroscience Annual Meeting, New Orleans, LA, October 24-30, 1997.
264. Badiani, A., Oates, M.M., Day, H.E.W., Akil, H., Watson, S.J. and Robinson, T.E.: Amphetamine-induced expression of *c-fos* in the striatum is modulated by environmental stimuli. Presented at the Society for Neuroscience Annual Meeting, New Orleans, LA, October 24-30, 1997.
265. Helmreich, D.L., Watkins, L.R., Maier, S.F., Akil, H. and Watson, S.J.: Escapable and non-escapable stress stimulate a similar pattern of mRNA expression within the paraventricular nucleus of the hypothalamus. Presented at the Endocrine Society Meeting, Minneapolis, MN, June 11-14, 1997.
266. Itoi, K.I., Helmreich, D.L. and Watson, S.J.: Norepinephrine (NE) stimulates CRF gene transcription in the hypothalamic paraventricular nucleus (PVN) of conscious rats. Presented at the Endocrine Society Meeting, Minneapolis, MN, June 11-14, 1997.

267. Akil, H., Kollack-Walker, S., Helmreich, D.L., Day, H.E.W. and Watson, S.J.: Brain circuits mediating activation and inhibition of stress responses: Selective modulation by controllability of the stressor. Presented at the American College of Neuropsychopharmacology Meeting, Kamuela, HI, December 8-12, 1997.
268. López, J.F., Vázquez, D.M., Watson, S.J. and Levine, S.: Maternal deprivation regulates brain 5-HT receptors in the infant rat. Presented at the Society of Biological Psychiatry Annual Meeting, Toronto, Ontario, May 27-30, 1998.
269. Ibrahim, H.M., Hogg, A.J., Haroutunian, V., Davis, K.L., Watson, S.J. and Meador-Woodruff, J.H.: Thalamic glutamate receptor expression in schizophrenia. Presented at the Society of Biological Psychiatry Annual Meeting, Toronto, Ontario, May 27-30, 1998.
270. Meador-Woodruff, J.H., Haroutunian, V., Davis, K.L. and Watson, S.J.: NMDA receptor dysregulation in schizophrenic prefrontal cortex. . Presented at the Society of Biological Psychiatry Annual Meeting, Toronto, Ontario, May 27-30, 1998.
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272. Takahashi, T., Bagnol, D., Yazdani, A., Li, Y., Watson, S.J. and Owyang, C.: Distribution and actions of orphanin in rat gastrointestinal tract. AGA/AASLD meeting, New Orleans, , 1998.
273. Morano, M.I., Caamaño, C.A., Watson, S.J. and Akil, H.: Ligand- and cell-dependent transactivation properties of co-expressed glucocorticoid and mineralocorticoid receptors. Presented at the 80th Annual Meeting of the Endocrine Society, New Orleans, June 24-27, 1998.
274. Meador-Woodruff, J., Ibrahim, H.M., Hogg, A.J., Haroutunian, V., Davis, K.L. and Watson, S.J.: Dysregulation of corticostriatal and thalamocortical glutamatergic circuitry in schizophrenic brain. Presented at the 21st CINP Congress, Glasgow, Scotland, July 12-16, 1998.
275. Meador-Woodruff, J., Bovenkerk, C.F., Haroutunian, V., Davis, K.L. and Watson, S.J.: Molecular substrates of neurochemical disturbances in schizophrenia. Presented at the 21st CINP Congress, Glasgow, Scotland, July 12-16, 1998.
276. Watson, S.J., Neal, C., Curran, E., Norton, C. and Akil, H.: Opioid + orphanan receptor anatomy (and function?). Presented at the INRC Annual Meeting, Garmisch-Partenkirchen, Germany, July 20-25, 1998.
277. Meng, F., Ueda, Y., Hoversten, M., Taylor, L.P., Watson, S.J. and Akil, H.: Multiple opioid alkaloid binding sites in the opioid receptors? Presented at the INRC Annual Meeting, Garmisch-Partenkirchen, Germany, July 20-25, 1998.
278. Lopez-Figueroa, M.O., Itoi, K., Helmreich, D.L., and Watson, S.J.: Regulation of subtype I nitric oxide synthase mRNA expression in the rat hypothalamus by norepinephrine. Presented at the Society for Neuroscience Annual Meeting, Los Angeles, CA, November 7-12, 1998.
279. Kollack-Walker, S., Akil, H. and Watson, S.J.: Differential expression of *c-fos* mRNA within neurocircuits of male hamsters exposed to acute or chronic defeat. Presented at the Society for Neuroscience Annual Meeting, Los Angeles, CA, November 7-12, 1998.
280. Neal, C.R. Jr., Mansour, A., Akil, H. and Watson, S.J.: Opioid receptor-like (ORL1) receptor mRNA expression and orphanin FQ binding in the rat CNS. Presented at the Society for Neuroscience Annual Meeting, Los Angeles, CA, November 7-12, 1998.

281. Bagnol, D., Kaelin, C.B., Day, H.E.W., Ollmann, M., Gantz, I., Akil, H. and Watson, S.J.: Distribution and projection of neurons for agouti related protein, an endogenous antagonist of proopiomelanocortin. Presented at the Society for Neuroscience Annual Meeting, Los Angeles, CA, November 7-12, 1998.
282. Day, H.E.W., Campeau, S., Watson, S.J., and Akil, H.: Regulation of adrenergic receptor mRNAs in rat brain following adrenalectomy. Presented at the Society for Neuroscience Annual Meeting, Los Angeles, CA, November 7-12, 1998.
283. Campeau, S., Akil, H., and Watson, S.J.: Retrograde and anterograde evidence of direct projections from auditory thalamic nuclei to hypophysiotropic paraventricular neurons. Presented at the Society for Neuroscience Annual Meeting, Los Angeles, CA, November 7-12, 1998.
284. Helmreich, D.L., Cullinan, W.E., and Watson, S.J.: PVN delivery of muscimol blunts the corticosterone response to acute immobilization stress. Presented at the Society for Neuroscience Annual Meeting, Los Angeles, CA, November 7-12, 1998.
285. Koetzner, L., Woods, J.H. and Watson, S.J.: Activation of CRH transcription in PVN but not CEA in rats during morphine withdrawal. Presented at the American Physiological Society, San Antonio, TX, December 5-9, 1998.
286. Meador-Woodruff, J.H., Richardson-Burns, S.M., Hogg, A.J., Ibrahim, H.M., Haroutunian, V., Davis, K.L. and Watson, S.J.: Thalamic dopamine receptor transcript expression in schizophrenia. Presented at the American College of Neuropsychopharmacology Annual Meeting, El Conquistador, Las Croabas, Puerto Rico, December 14-18, 1998.
287. Meador-Woodruff, J.H., Ibrahim, H.M., Richardson-Burns, S.M., Hogg, A.J., Haroutunian, V., Davis, K.L. and Watson, S.J.: Neurochemical anatomy of the thalamus in schizophrenia: Glutamate-specific abnormalities. Presented at the International Congress on Schizophrenia Research, 1999.
288. Meador-Woodruff, J.H., Ibrahim, H.M., Richardson-Burns, S.M., Haroutunian, V., Davis, K.L. and Watson, S.J.: Dopamine receptor transcript expression in schizophrenic thalamus. Presented at the Society of Biological Psychiatry Annual Meeting, 1999.
289. Ibrahim, H.M., Haroutunian, V., Davis, K.L., Watson, S.J., and Meador-Woodruff, J.H.: Thalamic glutamate receptor expression in schizophrenia. Presented at the Society of Biological Psychiatry Annual Meeting, 1999.
290. Richardson-Burns, S.M., Ibrahim, H.M., Haroutunian, V., Davis, K.L., Watson, S.J. and Meador-Woodruff, J.H.: Metabotropic glutamate receptor expression in schizophrenic thalamus. Presented at the Society of Biological Psychiatry Annual Meeting, 1999.
291. Richardson-Burns, S.M., Ibrahim, H.M., Haroutunian, V., Davis, K.L., Watson, S.J., and Meador-Woodruff, J.H.: Serotonin receptor mRNA abnormalities in schizophrenic thalamus. Presented at the Society of Biological Psychiatry Annual Meeting, 1999.
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293. Lu, X-Y, Gunn, T.M., Bagnol, D., Barsh, G.S., Akil, H. and Watson, S.J.: Distribution of mahogany mRNA in the rat central nervous system. Presented at the Society for Neuroscience Annual Meeting, 1999.
294. Lu, X-Y, Bagnol, D., Bagnol, C., Lei, F.M., Burke, S., Akil, H. and Watson, S.J.: Expression of orexin 1 and orexin 2 receptor mRNA are differentially regulated in the rat

- brain by food deprivation. Presented at the Society for Neuroscience Annual Meeting, 1999.
295. Lopez, J.F., Levine, S., Watson, S.J., and Vazquez, D.: The impact of material deprivation on the developing serotonin receptors: Effect of desipramine treatment. . Presented at the Society for Neuroscience Annual Meeting, 1999.
296. Isgor, C., Akil, H. and Watson, S.J.: Acute restraint stress affects the HPA axis of the female rat differentially across the estrus cycle. Presented at the Society for Neuroscience Annual Meeting, 1999.
297. Kollack-Walker, S., Helmreich, D., Watson, S.J. and Akil, H.: Differential expression of c-fos mRNA within the male Syrian hamster brain following footshock or defeat. Presented at the Society for Neuroscience Annual Meeting, 1999.
298. Helmreich, D., Itoi, K., Lopez-Figueroa, M. and Watson, S.J.: CRH and AVP transcription within the hypothalamus are differentially regulated by corticosterone. Presented at the Society for Neuroscience Annual Meeting, 1999.
299. Richardson-Burns, S., Haroutunian, V., Davis, K.L., Watson, S.J. and Meador-Woodruff, J.H.: Metabotropic glutamate receptor mRNA and protein expression in the prefrontal cortex and striatum of schizophrenics. Presented at the Society for Neuroscience Annual Meeting, 1999.
300. Kabbaj, M., Isgor, C., Watson, S.J. and Akil, H.: Chronic nonhabituated physical stress and intermittent social stress during adolescence affect the HPA axis of the adult rat. Presented at the Society for Neuroscience Annual Meeting, 1999.
301. Day, H.E.W., Badiani, A., Oates, M., Robinson, T.E., Watson, S.J. and Akil, H.: Environmental novelty differentially affects amphetamine-induced c-fos mRNA in the amygdala and bed nucleus of the stria terminalis. Presented at the Society for Neuroscience Annual Meeting, 1999.
302. Campeau, S., Dolan, D., Akil, H. and Watson, S.J.: Behavioral, hormonal, and neuronal indices of habituation to chronic audiogenic stress in rats. Presented at the Society for Neuroscience Annual Meeting, 1999.
303. Schafer, G., Lopez-Figueroa, M., Akil, H. and Watson, S.J.: Differential expression of nitric oxide synthase mRNA in hippocampus of four inbred mouse strains. Presented at the Society for Neuroscience Annual Meeting, 1999.
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